Discussion

At this time processing the audio data will remain propriatary. However a use of the quadratic mean, also called the Root-Mean-Square RMS, plays a minor role.

$$\{x \mid x \in \mathbb{R}, x_1, \ldots, x_n\}$$

$$x_{RMS} = \sqrt{\frac{x_1^2 + x_2^2 + \ldots + x_n^2}{n}}$$

$$= \sqrt{\frac{\sum_{i=1}^{n} x_i^2}{n}}$$

$$= \sqrt{(x^2)}$$

where (x^2) denotes the mean of the values x_i^2 values of a discrete distribution. For a variate x from a continuous distribution $p(x)$, $x_{RMS} = \sqrt{\frac{\int [p(x)]^2 \, dx}{\int p(x) \, dx}}$, where the integrals are taken over the domain of the distribution. In the application of this project the root-mean-square stands for the standard deviation and the square root of the mean squared deviation of a signal from a given baseline or fit.

Weisstein, Eric W. "Root-Mean-Square." From MathWorld--A Wolfram Web Resource. http://mathworld.wolfram.com/Root-Mean-Square.html